UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,416	05/29/2001	Akiyuki Yoshisato	9281-4102	7085

7590 01/16/2003

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER
VIGUSHIN, JOHN B

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/870,416	YOSHISATO ET AL.	
	Examiner	Art Unit	
	John B. Vigushin	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-5 and 7* is/are allowed.

6)☒ Claim(s) *6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Hernandez (US 5,272,590).

Hernandez discloses a capacitor 90 formed by laminating a first bottom electrode 94 and a first top electrode 98 with interposition of a first dielectric material 96 on a substrate 92 (Figs. 15 and 16; col.7: 63-col.8: 4); a semiconductor bare chip mounted on substrate 92, wherein the top electrode 98 (portions 106 and 108 thereof) of capacitor 90 (Fig. 15) is wire bonded to a top side electrode of bare chip 18 (Fig. 18).

Allowable Subject Matter

3. Claims 1-5 and 7 have been allowed.

4. The following is a statement of reasons for the indication of allowable subject matter:

As to Claims 1-4, patentability resides in **the combination of** limitations wherein: *thin film capacitors, resistors and inductance elements are formed on the alumina substrate and are connected to the thin film conducting pattern* **and** *an area of a connection land on which the semiconductor bare chip is mounted is smaller than a*

bottom surface area of the semiconductor chip, in further combination with the other limitations of base Claim 1.

As to Claims 5 and 7, patentability resides in the limitation wherein *the first top electrode (of the first capacitor) serves as a part of a connection land connected to a bottom side electrode of the semiconductor bare chip*, in combination with the other limitations of base Claim 5.

5. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Garbelli et al. (US 5,825,628) discloses an alumina substrate 120 (col.4: 25-27) with a connection land (i.e., either portions 212, 214, 216 and 218 considered collectively as one land, or, any one of said portions considered as a single one of four lands) having a surface area smaller than a bottom surface are of semiconductor bare chip 110 mounted thereon (Fig. 2). Garbelli et al. teaches discrete decoupling capacitors 410 and 510 (Figs. 4a and 5; col.6: 27-32; col.7: 8-16) but does not teach a thin film conducting pattern and thin film capacitors, resistors and inductance elements connected to the thin film conducting pattern.

Dudderar et al. (US 6,020,219) discloses a ceramic circuit board 200 (col.7: 1-2) with a connection land formed of localized metallic island layers 243, 244 and 245 coated with localized support layers 253, 254 and 255, respectively, wherein the area of any one or more of these islands 243, 244 and 245 is smaller than a bottom surface area of semiconductor bare chip 300 mounted thereon (Fig. 1). Dudderar et al. does not teach a thin film conducting pattern and thin film capacitors, resistors and inductance elements connected to the thin film conducting pattern.

Takiar et al. (US 5,629,563) discloses an alumina substrate 12 (col.3: 20-23) with semiconductor bare chips 14 mounted thereon and film-based capacitors, resistors and inductors printed thereon by thin or thick film techniques. Takiar et al. does not teach that the conducting pattern is also a thin film deposit (col.4: 33-57).

Kusamitsu (US 6,124,636) discloses a capacitor 12 laminated, by means of bottom electrode 12g, metal pads 12e and a bonding material, on a substrate 11 (Figs. 8B and 9B; col.6; 44-48) wherein the top electrode 12a of the capacitor 12 serves as part of a connection land connected to a bottom side electrode 14 of semiconductor bare chip 13 (Figs. 9B and 3). Kusamitsu does not teach that top capacitor electrode 12a and dielectric interposition material 12 is laminated **on the substrate 11**; only bottom electrode 12g is laminated **on the substrate 11** (Figs. 8B and 9B).

Carpenter (US 6,356,455 B1) discloses a thin film circuit including thin film resistor, capacitor and inductor, wherein the thin film package is fabricated on an epoxy resin substrate 12 (Fig. 5; col.2: 31-33) and embedded in a mechanically stronger dielectric for support (Fig. 6; col.3: 31-35).

Yamaguchi et al. (US 6,147,876) discloses a ceramic, glass epoxy or resin circuit board 100 on which bare IC chips 201 are mounted, and resistors, capacitors and inductors are printed, said resistors, capacitors and inductors being used for circuit adjustment and signal conditioning (Fig. 24; col.6: 40-46 and col.7: 4-11; col.13: 59-col.14: 18; col.14; 40-44; col.16: 43-53).

Drake et al. (US 6,404,649 B1) discloses thin capacitors 103 with top electrode 1033, bottom electrode 1034 and interposed dielectric 1036 mounted on a substrate 101 within the footprint 102 of a BGA package 110 (Figs. 2, 3 and 5C; col.3: 42-45; col.4: 20-25).

Liu (US 6,320,757 B1) discloses electrodes 120a and 120b of discrete capacitor 120 directly wire bonded to a top side electrode 110a of semiconductor bare chip 110.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Vigushin whose telephone number is 703-308-1205. The examiner can normally be reached on 8:30AM-5:00PM Mo-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

John B. Vigushin
Examiner
Art Unit 2827

jbv
January 11, 2003